

CLAIMS

1. A monoparamunity inducer based on paramunizing viruses or viral components, characterized in that the  
5 viruses or viral components are derived from an attenuated rabbit myxomavirus strain.
2. The monoparamunity inducer as claimed in claim 1,  
10 characterized in that the attenuated myxomavirus strain has a modification in the form of an addition, substitution or deletion in one or more gene segments coding for the production of cytokine receptors, with the receptor properties of the cytokine receptor being lost through the modification.
- 15 3. The monoparamunity inducer as claimed in claim 2, characterized in that the cytokine receptors are selected from the group of receptors for interferons (IFN), interleukins (IL) and tumor necrosis factor  
20 (TNF).
4. The monoparamunity inducer as claimed in claim 3, characterized in that the cytokine receptors are selected from the group of receptors for IFN $\alpha$ -R,  
25 IFN $\gamma$ -R, TNF-R, IL-1-R, IL-2-R, IL-6-R and IL-12-R.
5. The monoparamunity inducer as claimed in any of claims 1 to 4, characterized in that the viral components include viral envelopes or aberrant forms of  
30 viral envelopes of an attenuated myxomavirus strain.
6. The monoparamunity inducer as claimed in any of claims 1 to 5, characterized in that the myxomavirus strain is selected from the group consisting of M2, M7,  
35 Lausanne, Aust/Uriarra/Verg-86/1.
7. The monoparamunity inducer as claimed in claim 6, characterized in that the myxomavirus strain is the

strain M-2 with the deposit number ECACC 03121801.

8. The monoparamunity inducer as claimed in any of claims 1 to 7, characterized in that the myxomavirus strain has been attenuated in cell cultures.

9. The monoparamunity inducer as claimed in claim 8, characterized in that the cell cultures comprise Vero monkey kidney cells and/or AVIVER cells.

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10. The monoparamunity inducer as claimed in any of claims 1 to 9, characterized in that the attenuated myxomaviruses are inactivated.

11. The monoparamunity inducer as claimed in claim 10, characterized in that the attenuated myxomaviruses have been inactivated with beta-propiolactone.

12. The monoparamunity inducer as claimed in claim 11, characterized in that the concentration of beta-propiolactone is 0.01-1%.

13. The monoparamunity inducer as claimed in claim 12, characterized in that the concentration of beta-propiolactone is 0.05%.

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14. The monoparamunity inducer as claimed in any of claims 1 to 13, characterized in that the myxomaviruses have been lyophilized.

15. The use of the monoparamunity inducer as claimed in any of claims 1 to 14 for producing a pharmaceutical composition.

16. The use of the monoparamunity inducer as claimed in any of claims 1 to 14 for producing a pharmaceutical composition for activating the paraspecific immune system in humans and animals.

17. The use of the monoparamunity inducer as claimed in any of claims 1 to 14 for producing a pharmaceutical composition for the parenteral treatment and/or for the prophylaxis of dysfunctions of the immune system, immunosuppression, immunodeficiency disorders, dysfunctions of homeostasis between the hormonal, circulatory, metabolic and nervous systems, threatened neonatal infection, neoplastic diseases, viral diseases, bacterial diseases, therapy-resistant infectious factor diseases, viral and bacterial mixed infections, chronic manifestations of infectious processes, liver disorders of various etiologies, chronic skin disorders, herpetic diseases, chronic hepatitis, influenza infections, endotoxin damage.

18. The use as claimed in any of claims 15 to 17, where the treatment takes place by local administration of the pharmaceutical composition via the skin or mucous membranes of patient.

19. A pharmaceutical composition including a monoparamunity inducer as claimed in any of claims 1 to 14 and a pharmaceutically acceptable carrier.

20. The pharmaceutical composition as claimed in claim 19, for local or parenteral administration.

21. The pharmaceutical composition as claimed in claim 19, where the composition is in the form of buccal and suckable tablets.

22. A method for producing a monoparamunity inducer based on an attenuated rabbit myxomavirus strain, comprising the steps:

- isolation of myxomaviruses from infected tissue of a rabbit typically suffering from generalized myxomatosis;

- adaptation of the virus to a permissive cell system;

- passaging of the isolated viruses in a permissive cell culture until attenuation of the virus is achieved.

23. The method as claimed in claim 22, where the isolated viruses are inoculated onto the chorioallantoic membrane (CAM) of incubated chicken eggs for the adaptation.

24. The method as claimed in claim 23, where the virus is replicated over 2 to 6 passages, preferably over 3 passages, on the CAM.

25. The method as claimed in claim 22, where the myxomaviruses present in the infected tissue are isolated by replication in a permissive cell system.

26. The method as claimed in claim 25, characterized in that the virus is isolated by culturing on the chorioallantoic membrane (CAM) of incubated chicken eggs.

27. The method as claimed in claim 26, characterized in that the virus is subsequently adapted to the CAM over further passages, preferably over 2 further passages.

28. The method as claimed in any of claims 22 to 27, where the virus is passaged in a permanent cell culture.

29. The method as claimed in claim 28, where the virus is passaged in a Vero cell culture.

30. The method as claimed in claim 29, characterized in that the attenuation of the myxomaviruses takes

place over 80 to 150 passages, preferably over 120 passages, in Vero cell cultures.

31. The method as claimed in any of claims 28 to 30,  
5 where the virus is passaged in a binary cell culture.

32. The method as claimed in claim 31, where the virus is passaged in an AVIVER cell culture.

10 33. The method as claimed in claim 32, characterized in that the passaging takes place over 10 to 50 passages, preferably over 25 passages.

15 34. The method as claimed in any of claims 22 to 33, where the attenuated myxomaviruses are additionally replicated over further attenuation passages.

20 35. The method as claimed in claim 34, where the replication takes place in Vero monkey kidney cells.

36. The method as claimed in claim 35, characterized in that the further growth takes place in Vero cells over 100 to 200 passages.

25 37. The method as claimed in any of claims 34 to 36, characterized in that the viral harvests of the cell culture have an infectious titer of from  $10^5$  to  $10^{7.5}$ , preferably of at least  $10^{6.5}$ , TCID<sub>50</sub>/ml.

30 38. The method as claimed in any of claims 22 to 37, where the attenuated myxomaviruses are additionally inactivated.

35 39. The method as claimed in claim 38, where the attenuated myxomaviruses are treated with beta-propiolactone for the inactivation.

40. The method as claimed in claim 39, characterized

in that the concentration of beta-propiolactone is 0.01-1%.

41. The method as claimed in claim 40, characterized  
5 in that the concentration of beta-propiolactone is 0.05%.

42. The method as claimed in any of claims 22 to 41, including the steps

- 10 - isolation of myxomaviruses from the infected tissue of the rabbit suffering from myxomatosis by replication on the CAM of incubated chicken eggs and subsequent
  - adaptation of the isolated myxomavirus to the  
15 CAM over a further 2 passages
  - attenuation of the isolated viruses by
    - passaging in Vero cell cultures, preferably over 120 passages,
    - transfer of the viruses into the binary  
20 AVIVER cell culture with further attenuation of the virus, preferably over 24 intermediate passages, in this cell culture,
    - subsequent transfer of the virus back onto  
25 Vero monkey kidney cells, and
  - replication of the attenuated myxomaviruses by further attenuation passages in the Vero cells, preferably over about 150 passages.

30 43. An attenuated myxomavirus obtainable by the method as claimed in any of claims 22 to 42.

44. The myxomavirus as claimed in claim 43, deposited  
at the European Collection of Cell Cultures (ECACC)  
35 under the deposit number 03121801.

45. The myxomavirus as claimed in claim 43 or 44, characterized in that the myxomavirus is genetically

modified.

46. The myxomavirus as claimed in claim 45,  
characterized in that the myxomavirus have a  
5 modification in the form of an addition, substitution  
or deletion in one or more gene segments coding for the  
production of cytokine receptors, with the receptor  
properties of the cytokine receptor being lost through  
the modifications.

10 47. The myxomavirus as claimed in claim 46,  
characterized in that the cytokine receptors are  
selected from the group of receptors for interferons  
(IFN), interleukins (IL) and tumor necrosis factor  
15 (TNF).

48. The myxomavirus as claimed in claim 47,  
characterized in that the cytokine receptors are  
selected from the group of receptors for IFN $\alpha$ -R,  
20 IFN $\gamma$ -R, TNF-R, IL-1-R, IL-2-R, IL-6-R and IL-12-R.